

ATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

~~Date of mailing~~

(day/month/year)

19.07.2006

Applicant's or agent's file reference

P5029PCT

IMPORTANT NOTIFICATION

International application No.

PCT/GB2005/001245

International filing date (day/month/year)

30.03.2005

Priority date (day/month/year)

01.04.2004

Applicant

DUNLOP AEROSPACE LIMITED et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:



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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P5029PCT	FOR FURTHER ACTION <div style="text-align: right;">See Form PCT/PEA/416</div>	
International application No. PCT/GB2005/001245	International filing date (day/month/year) 30.03.2005	Priority date (day/month/year) 01.04.2004
International Patent Classification (IPC) or national classification and IPC INV. B64C25/36		
Applicant DUNLOP AEROSPACE LIMITED et al		
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 2 sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).		
4. This report contains indications relating to the following items: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application </div>		
Date of submission of the demand 17.01.2006	Date of completion of this report 19.07.2006	
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized officer Monica S. O. Navarro Telephone No. +49 89 2399-7376	



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2005/001245

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-7 as originally filed

Claims, Numbers

1-12 received on 19.01.2006 with letter of 17.01.2006

Drawings, Sheets

1/4-4/4 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB2005/001245

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-12
	No: Claims	
Inventive step (IS)	Yes: Claims	1-12
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. None of the available prior art shows an aircraft wheel assembly with all the features of independent claim 1.

1.1. The document EP 0 445 851 (=D1) is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

An aircraft wheel assembly including an axle housing means (30) for sensing wheel speed, one end of the axle being covered by a cap member (60), the cap member (60) comprising a generally cup-like body having an end wall (76) towards the free end of the axle and means for driving the wheel speed sensing means (30) (see cited passages).

1.2. The problem to be solved by the present invention may be regarded as providing an improved hubcap which reduces the noise caused by the airflow over the wheel assembly whilst providing a lighter wheel assembly.

1.3. This is achieved by the side wall of the cap body having at least one stiffening formation arranged to influence the flow of air around the exposed exterior of the cap member in flight whereby to reduce the level of noise generated.

The subject-matter of claim 1 therefore meets the requirements of Articles 33(1)-(3) PCT.

2. Claims 2 to 9 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

3. The document EP 0 445 851 (=D1) is also regarded as being the closest prior art to the subject-matter of claim 10, and discloses (the references in parentheses applying to this

document):

A hubcap for an aircraft wheel assembly which has an axle housing means for sensing wheel speed and means for sensing tyre pressure, the hub cap (60) comprising a generally cup-like body having an end wall (76), the body having a mouth and a flange (70) at said mouth for engagement with clamping means by which the hub cap (60) is fixed on to a free end of the axle and the inner surface of the end wall (76) having formations for engagement with the wheel speed sensing means (30)(see cited passages).

- 3.1. The subject-matter of claim 10 differs from this in that a slot extends from the flange into the side wall of the body to receive components of the means for sensing tyre pressure, and in that ribs are spaced about the exterior of the side wall of the body.
- 3.2. Although D3 shows an aircraft wheel with a tyre pressure means, there is no disclosure of the ribs in the exterior of the hubcap body. As explained above, these ribs increase the stiffness of the hubcap, allowing to reduce its wall thickness, which reduces the overall weight of the wheel assembly. Further, the ribs allow for a smoother airflow around the hubcap, which reduces the noise generated over the wheel assembly.

The subject-matter of claim 10 therefore meets the requirements of Articles 33(1)-(3) PCT.

4. Claims 11 to 12 are dependent on claim 10 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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CLAIMS

1. An aircraft wheel assembly including an axle housing means for sensing wheel speed, one end of the axle being covered by a cap member, the cap member comprising a generally cup-like body having an end wall towards the free end of the axle and means for driving the wheel speed sensing means, the side wall of the body having at least one stiffening formation arranged to influence the flow of air around the exposed exterior of the cap member in flight whereby to reduce the level of noise generated. .
2. An assembly according to Claim 1, wherein the at least one formation comprises a rib or fin on the side wall of the cup-like body.
3. An assembly according to Claim 1 or 2, wherein at least one formation extends from the end wall to an open end of the cup-like body and increase in thickness towards the open end.
4. An assembly according to Claim 1, 2 or 3, wherein at least one formation is hollow.
5. An assembly according to any preceding Claim, wherein there is a plurality of said surface formations and said formations are spaced substantially evenly about the cap member.
6. An assembly according to any preceding Claim, wherein the cup-like body tapers radially outwardly away from the end wall.
7. An assembly according to any preceding Claim, wherein the axle protrudes beyond a wheel rim of a wheel of the wheel assembly.

8. An assembly according to any preceding Claim, wherein the assembly is a main wheel assembly incorporating tyre pressure sensing means and the cap member includes means for mounting said tyre pressure sensing means.
9. An aircraft incorporating at least one wheel assembly according to any preceding Claim.
10. A hubcap for an aircraft wheel assembly which has an axle housing means for sensing wheel speed and means for sensing tyre pressure, the hub cap comprising a generally cup-like body having an end wall, the body having a mouth and a flange at said mouth for engagement with clamping means by which the hub cap is fixed on to a free end of the axle and a slot extending from the flange into the side wall of the body to receive components of the means for sensing tyre pressure, the inner surface of the end wall having formations for engagement with the wheel speed sensing means, ribs being spaced about the exterior of the side wall of the body.
11. A hubcap according to Claim 10, wherein said ribs are hollow.
12. A hubcap according to Claim 10 or 11, wherein the side wall of the body flares radially outwardly away from the end wall to the flange.